Safety	Certification	Airport Management
Operations Facilities	Aircraft Certification Licensing Flight Standards Rulemaking Accident Investigation	Aircraft •Support •Ground Operations Airport •Operations •Development •Infrastructure

Security	Business Management
Personnel Facilities Information	Operations Logistics Training

7. Other NAS Services

The NAS Architecture addresses several other NAS service groups in addition to Air Traffic. These include Safety, Certification, Airport Management, Security, and FAA Business Management.

Safety

Aviation system safety will continue to be the top priority throughout NAS modernization as capacity, efficiency, and flexibility increase. Safety will be enhanced through:

- Incrementally implementing new systems while legacy systems continue operation;
- Applying safety principles as new technology is introduced; and
- Considering and incorporating human performance in advanced automation technology.

"Strengthening our commitment to keeping safety as our paramount concern cannot be overemphasized."

Norman Y. Mineta,
Secretary
U.S. Department of Transportation

Many FAA initiatives focus on increasing NAS safety. As part of the *FAA Strategic Plan*, the Safety Mission Goal is to reduce U.S. aviation fatal accident rates by 80 percent from 1996 levels by 2007. Goals are set to reduce GA accidents (which include nonfatal accidents) to 350 per year, reduce the overall aircraft accident rate per 100,000 flight hours, and increase survivability.

In 1998, the FAA announced a major initiative to achieve significant reductions in fatal accidents by 2007. Concentrating resources on the most prevalent causes of aircraft accidents, Safer Skies is an initiative that uses a disciplined, data-driven approach to find root causes and determine the best actions to break the chain of events leading to accidents.

The Safer Skies focused approach encompasses:
- Analyzing past accidents;
- Identifying accident precursors;
- Developing specific interventions to address precursors;
- Implementing the interventions;
- Tracking implementation for effectiveness; and
- Using knowledge gained to improve the aviation system.

Safer Skies consists of three teams with similar goals to improve aviation safety.
- The Commercial Aviation Safety Team (CAST) aims to reduce the commercial aviation accident rate by 80 percent by 2007. CAST, originally founded as an industry initiative, comprises representatives from government and industry. CAST is now part of the commercial aviation portion of the FAA Safer Skies agenda. CAST focuses on the leading causes of commercial aviation fatalities, including uncontained engine failures, Controlled Flight Into Terrain (CFIT), approach and landing, loss of control, runway incursions, and weather.
- The General Aviation Joint Steering Committee aims to eliminate the equivalent of an entire year's worth of accidents by 2007. This committee focuses on the leading causes of GA accidents, including CFIT, weather, pilot decisionmaking, loss of control, and runway incursions, and on increasing survivability.
- The Partners in Cabin Safety Team has completed work in several areas, including child restraints, passenger seatbelt use, carry-on baggage, and unruly passengers, thus accomplishing the cabin safety portion of the Safer Skies initiative in 2000.

Other FAA safety strategies include safety risk mitigation and information sharing. Safety risk mitigation leads to the development and fielding of systems, technologies, and procedures that target high-risk hazards in the NAS, and the development of an integrated safety risk management process that ensures hazards are identified, assessed, and managed to reduce risk. The FAA is acquiring proven, often leading-edge technologies designed to reduce risk associated with the highest safety hazards in the NAS. The FAA has programs that work to prevent runway incursions, mid-air collisions, flight-into-hazardous-weather conditions, and CFIT. Systems supporting safety risk mitigation include: GPS, WAAS, LAAS, ADS-B, ASDE-X, ASDE-3, AMASS, TDWR, NEXRAD, ITWS, and MIAWS.

For safety information sharing, the FAA develops partnerships with the aviation community to share data and information supporting safe, secure aviation. The purpose is to identify potential problems and issues before they lead to accidents and to route information to appropriate personnel. One project that supports this strategy is the Aviation Safety Action Program (ASAP).

The ASAP partnership, which includes the FAA, airlines, and employee unions, encourages better reporting of safety concerns by aviation employees to their employers. ASAP gives the FAA and airlines an important new source of information to prevent unsafe incidents and will help meet the goal of reducing commercial aviation accidents by 80 percent by 2007.

Certification

The FAA regulates aerospace safety. The numerous activities involved in carrying out this mission include:
- Certification of aircraft and aircraft components, air operators and airmen, NAS ground-based equipment, airspace changes, and airports; continued airworthiness monitoring and inspection of aircraft; and new or revised flight regulations that change operating procedures;
- Issuance of licenses to conduct commercial space transportation launches and re-entry flights and to operate non-Federal launch and re-entry sites; and
- Participation in accident investigation and rulemaking activities.

The transition to new technologies and systems creates a challenge to certify and maintain certification of substantial NAS equipment. Equipment introduced into the NAS must be certified prior to operational use. Timely and comprehensive certification of avionics, software, and equipment is essential to NAS modernization. Certification standards involve close collaboration with the aviation industry. In addition, new regulations are required to address new capabilities, such as direct routing, that will result from NAS modernization.

The FAA strategy for aerospace safety regulation is to extend traditional regulatory and enforcement roles to develop new approaches to working with the aerospace community on certification, inspection, and surveillance. The FAA targets resources with the greatest possible positive impact on aerospace safety. Projects supporting aerospace safety regulation include the Air Transportation Oversight System (ATOS), Space Transportation Vehicle Safety, and development of national safety standards for commercial launch operations.

ATOS is an improved way of doing business for the FAA. The goal is to foster a higher level of air carrier safety using a systematic, data-driven approach to identify safety trends and prevent accidents.

Air carriers must operate at the highest level of safety and FAA inspectors ensure that they comply with Federal regulations. ATOS ensures that air carriers have safety built into their operations and changes the way the FAA manages air carrier safety. ATOS is a proactive approach that goes beyond ensuring compliance with regulations. The FAA asks its workforce to think in terms of system safety and risk management, rather than simply to comply with regulations. This proactivity includes reviewing an air carrier's management, corporate safety culture, and its experience, as well as the airline's systems.

Space Transportation Vehicle Safety will establish an FAA process to address all aspects of space flight operations. In addition, the FAA works with the Air Force to establish common safety standards for military and licensed launches.

Airport Management

Airport management services provide an airport system to satisfy the needs of the aviation community. Airport management also considers economic and environmental compatibility and local proprietary rights while safeguarding the public investment. The FAA provides regulation compliance guidelines, standards, funding authority, funding grants, and certification for airport planning, development, operations, and maintenance. Airport management is organized into aircraft ground operations, aircraft support, airport operations (including passenger, baggage, cargo, ground transportation, and other support services), airport development, and airport infrastructure information management services.

Security

Security services protect users against terrorist and other criminal acts and protect NAS facilities, equipment, and employees. These services include providing physical security for air traffic and airport facilities, security for passengers, and information security.

There is currently a heightened awareness of security in the aviation industry. The Aviation and Transportation Security Act (ATSA), Public Law 107-71, was passed on November 19, 2001. ATSA requires additional qualifications for screeners, including U.S. citizenship and increased training and testing.

Airport security

Under ATSA, by November 19, 2002, the responsibility for inspecting persons and property carried by aircraft operators and foreign air carriers is transferred to the Under Secretary of Transportation for Security, who heads a new agency created by that statute, the TSA 💻.

> "For our airways, there is one supreme priority: security."
>
> George W. Bush, President of the United States

The FAA has pursued numerous research initiatives to help the TSA ensure that all security technologies viable in the fight against terrorism are considered. In October 2001, the FAA Security Research and Advisory Committee began evaluating over 1,000 technology recommendations from industry sources. Also in 2001, the FAA sponsored its Third International Aviation Security Technology Symposium in Atlantic City, where vendors' security technologies were on display.

More than 160 Explosives Detection Systems (EDS) have been deployed to airports across the country. More than 2,000 EDS must be

deployed to meet the December 31, 2002, goal of 100 percent EDS screening of all checked bags. The FAA is also pursuing Argus, an initiative to develop a smaller and less expensive EDS to use at smaller airports.

In addition to the EDS, the FAA is currently purchasing Explosives Trace Detection (ETD) devices from three vendors with FAA-approved products. The FAA has installed more than 850 ETD devices in airports across the country.

Information Security

The Information Systems Security (ISS) Architecture implements the Information Security framework, which complies with the FAA ISS policies and Security Certification and Authorization Process (SCAP), to provide an acceptable level of security to the NAS and Administration and Mission Support (A&MS) Systems. Security-related network hardware and software are being strategically and system-atically distributed across the NAS and A&MS infrastructure to serve and protect sensitive resources.

System Complexity: Network managers are prepared to counteract the various attacks of computer criminals, hackers with malicious intent, or disgruntled workers, by implementing a measure of computer network security that deals with various computer and network security platforms, each with its own unique software and hardware authentications at endpoints, data integrity, and encryption. Each computer has unexpected vulnerabilities and failure modes. The security architecture provides an overall security management structure for the NAS and A&MS Systems to ensure a layered method of security to monitor and manage the overall FAA architecture infrastructure.

Layered Approach: An intrusion occurs when someone attempts to break into or misuse a system. The word "misuse" is broad, and can refer to a wide range of actions, from stealing confidential data to corrupting data and bringing the network down, causing a denial of service. The smallest element of intrusion detection data is referred to as an event. An event is an auditable occurrence on the network. Layered security allows protection of the network at various points via a number of security devices. The challenges in securing a computer network can be viewed in three stages:
1.   Prevention: to avoid intrusions, if possible;
2.   Detection: to know as soon as possible when an intrusion attempt occurs; and
3.   Reaction: to respond to an intrusion and to detect and prevent it in the future.

Manageable Security Devices: Manageable security devices are key to knowing, at all times, the current health of an entire network. With these devices, a network can be managed, monitored, and upgraded from a centralized remote location, if desired. Key security-related devices include: routers, firewalls, switches, virus protection patches, virtual private networks, and intrusion detection devices.

Security Management: Security management is paramount to controlling remotely, managing, distributing, and enforcing security policies across the NAS and A&MS systems. This will enable the FAA to share security devices and features and to upgrade numerous systems with the latest security technologies available in a cost-effective and timely manner. Security management allows for a more in-depth and layered approach to protection. Each system, prior to being integrated into the NAS, must go through a detailed SCAP procedure. The SCAP eliminates and/or mitigates all associated security-related risks. The mitigation of risk not only applies to the system/network being certified, but to all associated risks possibly generated as a result of all applicable interfaces to the system/network.

Future: Security procedures evolve constantly to counteract new cyber attacks with the latest security-related technologies to provide security for all NAS and A&MS systems.

Business Management

Business management services are provided by the FAA to operate the NAS effectively and deliver cost-effective services to the aviation community and other stakeholders and users. Business management includes acquiring systems, administering regional operations, providing depot maintenance and logistics support, and training personnel.